

WHAT IS CLAIMED IS:

~~SUB1A17~~

1. A method for accessing a data set from one of two storage devices, each including a copy of the data set, comprising:
  - 3 maintaining a flag for each storage device indicating whether a previous access attempt of the data set from the storage device failed;
  - 5 selecting the storage device having the flag indicating that no previous access attempt failed if the flag for the other storage device indicates that one previous access attempt of the data set from the storage device failed; and
  - 7 accessing the data set from the selected storage device.
- 1 2. The method of claim 1, further comprising using a selection criteria to access one of the first and second storage devices that is unrelated to a value of the flag if the flags for both storage devices have the same value.
- 1 3. The method of claim 1, further comprising synchronizing the data set on both the first and second storage devices after accessing the data set from the selected storage device.
- 1 4. The method of claim 1, wherein a flag is maintained for each data set in the first and second storage devices and wherein the first and second storage devices have the same data sets.
- 1 5. The method of claim 1, further comprising: accessing the data set from one of a third and fourth storage devices if the data set is in one of the third and fourth storage devices, wherein the steps of selecting one of the first and second storage devices and accessing the data from one of the first and second storage devices occurs if the data set is not in one of the third and fourth storage devices;

6           copying the data set from the first storage device to the third storage device when  
7       accessing the data set from the first storage device; and  
8           copying the data set from the second storage device to the fourth storage device  
9       when accessing the data set from the first storage device.

1           6.       The method of claim 5, wherein the step of accessing the data set  
2       comprises recalling the data set and wherein the flag indicates whether a recall attempt of  
3       the data failed, further comprising:

4           scheduling a write operation to copy the data set from the third storage device to  
5       the first storage device;  
6           receiving a request to access the data set after scheduling the write operation; and  
7           recalling the data set from the third storage device if the scheduled write operation  
8       has not yet copied the requested data set to the first storage device, wherein the steps of  
9       selecting one of the first and second storage devices to access the data set and accessing  
10      the data set occurs if the scheduled write operation of the data set to the first storage  
11      device completed.

1           7.       The method of claim 6, further comprising randomly selecting one of the  
2       first and second storage devices from which to recall the data set if the requested data set  
3       has been copied to the first and second storage devices as a result of the scheduled write  
4       operation and if the flags for both storage devices have the same value.

1           8.       The method of claim 5, wherein a data level is maintained for the data set  
2       in both the third and fourth storage devices indicating a version of the data set, further  
3       comprising determining whether the data set is in both the third and fourth storage  
4       devices, wherein accessing the data set from one of the third and fourth storage devices  
5       comprises accessing the data set from one of the third and fourth storage devices having a  
6       highest data level for the data set.

1           9.     The method of claim 8, further comprising randomly selecting one of the  
2     third and fourth storage devices from which to access the data set if the data levels of the  
3     data set at both the third and fourth storage devices have the same value.

1           10.    A system for accessing a data set from one of two storage devices, each  
2     including a copy of the data set, comprising:  
3         means for maintaining a flag for each storage device indicating whether a previous  
4     access attempt of the data set from the storage device failed;  
5         means for selecting the storage device having the flag indicating that no previous  
6     access attempt failed if the flag for the other storage device indicates that one previous  
7     access attempt of the data set from the storage device failed; and  
8         means for accessing the data set from the selected storage device.

1           11.    The system of claim 10, further comprising means for using a selection  
2     criteria to access one of the first and second storage devices that is unrelated to a value of  
3     the flag if the flags for both storage devices have the same value.

1           12.    The system of claim 10, further comprising means for synchronizing the  
2     data set on both the first and second storage devices after accessing the data set from the  
3     selected storage device.

1           13.    The system of claim 10, wherein a flag is maintained for each data set in  
2     the first and second storage devices and wherein the first and second storage devices have  
3     the same data sets.

1           14.    The system of claim 10, further comprising:  
2         means for accessing the data set from one of a third and fourth storage devices if  
3     the data set is in one of the third and fourth storage devices, wherein the means for

4 selecting one of the first and second storage devices and accessing the data from one of  
5 the first and second storage devices occurs if the data set is not in one of the third and  
6 fourth storage devices;  
7 means for copying the data set from the first storage device to the third storage  
8 device when accessing the data set from the first storage device; and  
9 means for copying the data set from the second storage device to the fourth  
10 storage device when accessing the data set from the first storage device.

1 15. The system of claim 14, wherein the means for accessing the data set  
2 comprises recalling the data set and wherein the flag indicates whether a recall attempt of  
3 the data failed, further comprising:  
4 means for scheduling a write operation to copy the data set from the third storage  
5 device to the first storage device;  
6 means for receiving a request to access the data set after scheduling the write  
7 operation; and  
8 means for recalling the data set from the third storage device if the scheduled  
9 write operation has not yet copied the requested data set to the first storage device,  
10 wherein the steps of selecting one of the first and second storage devices to access the  
11 data set and accessing the data set occurs if the scheduled write operation of the data set  
12 to the first storage device completed.

1 16. The system of claim 15, further comprising means for randomly selecting  
2 one of the first and second storage devices from which to recall the data set if the  
3 requested data set has been copied to the first and second storage devices as a result of the  
4 scheduled write operation and if the flags for both storage devices have the same value.

1 17. The system of claim 14, wherein a data level is maintained for the data set  
2 in both the third and fourth storage devices indicating a version of the data set, further

3 comprising means for determining whether the data set is in both the third and fourth  
4 storage devices, wherein the means for accessing the data set from one of the third and  
5 fourth storage devices comprises accessing the data set from one of the third and fourth  
6 storage devices having a highest data level for the data set.

1       18. The system of claim 17, further comprising means for randomly selecting  
2 one of the third and fourth storage devices from which to access the data set if the data  
3 levels of the data set at both the third and fourth storage devices have the same value.

1       19. An article of manufacture for use in programming a processing unit to  
2 accessing a data set from one of two storage devices, each including a copy of the data  
3 set, the article of manufacture comprising computer readable storage media including at  
4 least one computer program embedded therein that causes the processing unit to perform:  
5           maintaining a flag for each storage device indicating whether a previous access  
6 attempt of the data set from the storage device failed;  
7           selecting the storage device having the flag indicating that no previous access  
8 attempt failed if the flag for the other storage device indicates that one previous access  
9 attempt of the data set from the storage device failed; and  
10          accessing the data set from the selected storage device.

1       20. The article of manufacture of claim 19, further comprising using a  
2 selection criteria to access one of the first and second storage devices that is unrelated to a  
3 value of the flag if the flags for both storage devices have the same value.

1       21. The article of manufacture of claim 19, further comprising synchronizing  
2 the data set on both the first and second storage devices after accessing the data set from  
3 the selected storage device.

1           22.    T The article of manufacture of claim 19, wherein a flag is maintained for  
2 each data set in the first and second storage devices and wherein the first and second  
3 storage devices have the same data sets.

1           23.    The article of manufacture of claim 19, further comprising:  
2                 accessing the data set from one of a third and fourth storage devices if the data set  
3 is in one of the third and fourth storage devices, wherein the steps of selecting one of the  
4 first and second storage devices and accessing the data from one of the first and second  
5 storage devices occurs if the data set is not in one of the third and fourth storage devices;  
6                 copying the data set from the first storage device to the third storage device when  
7 accessing the data set from the first storage device; and  
8                 copying the data set from the second storage device to the fourth storage device  
9 when accessing the data set from the first storage device.

1           24.    The article of manufacture of claim 23, wherein the step of accessing the  
2 data set comprises recalling the data set and wherein the flag indicates whether a recall  
3 attempt of the data failed, further comprising:  
4                 scheduling a write operation to copy the data set from the third storage device to  
5 the first storage device;  
6                 receiving a request to access the data set after scheduling the write operation; and  
7                 recalling the data set from the third storage device if the scheduled write operation  
8 has not yet copied the requested data set to the first storage device, wherein the steps of  
9 selecting one of the first and second storage devices to access the data set and accessing  
10 the data set occurs if the scheduled write operation of the data set to the first storage  
11 device completed.

1           25.    The article of manufacture of claim 24, further comprising randomly  
2 selecting one of the first and second storage devices from which to recall the data set if

3 the requested data set has been copied to the first and second storage devices as a result of  
4 the scheduled write operation and if the flags for both storage devices have the same  
5 value.

1           26. The article of manufacture of claim 23, wherein a data level is maintained  
2 for the data set in both the third and fourth storage devices indicating a version of the data  
3 set, further comprising determining whether the data set is in both the third and fourth  
4 storage devices, wherein accessing the data set from one of the third and fourth storage  
5 devices comprises accessing the data set from one of the third and fourth storage devices  
6 having a highest data level for the data set.

1           27. The article of manufacture of claim 19, further comprising randomly  
2 selecting one of the third and fourth storage devices from which to access the data set if  
3 the data levels of the data set at both the third and fourth storage devices have the same  
4 value.